

A New Species of *Acanthistius* (Pisces: Serranidae) from Eastern Australia

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Abstract

A new species of serranid fish *Acanthistius paxtoni*, is described from New South Wales. It is closely related to *A. cinctus* (Günther), also from eastern Australia, but is separable on the basis of colour pattern and scalation. Morphological and coloration discrepancies also distinguish it from the Easter Island species *A. fuscus* Regan, an apparent close relative previously assumed to be synonymous with *A. cinctus*.

Introduction

Australian members of the Southern Hemisphere serranid genus *Acanthistius* inhabit inshore and offshore warm temperate reefs in depths ranging from the intertidal zone to at least 64 m. They are distinguished from other Australian serranids by possessing 13 dorsal fin spines and 99 or more vertical scale rows above the lateral line. In a recent paper describing a new species of *Acanthistius* from Western Australia (Hutchins 1981), four Australian species were recognized: *A. cinctus* (Günther, 1859) and *A. ocellatus* (Günther, 1859) from eastern Australia, and *A. serratus* (Cuvier, 1828) and the new *A. pardalotus* from Western Australia. The four species are morphologically similar and best separated by their diagnostic colour patterns. The most distinctively marked is *A. cinctus* with its well defined body bars. The other three species possess spotted and/or blotched colour patterns. The present paper describes a new barred species of *Acanthistius* from New South Wales and compares it with the closely related *A. cinctus*. It is also contrasted with *A. fuscus* Regan, 1913 from Easter Island because of a previous report (Randall 1976: 336) that *A. cinctus* and the Easter Island species may be synonymous.

Measurements were made as in Hutchins (1981). Both type specimens are housed at the Australian Museum, Sydney, hereafter abbreviated AM. Other abbreviations used are BMNH — British Museum (Natural History), WAM — Western Australian Museum and SL — standard length.

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Systematics

Acanthistius paxtoni sp. nov.

Figure 1; Table 1

Holotype

AM I.21555-001, 204 mm SL, collected by fish trap at Seal Rocks, New South Wales (32°26'S, 152°32'E) at 64 m, R.H. Kuiter, 25 May 1980.

Paratype

AM I.16997-001, 258 mm SL, Watsons Bay, Sydney Harbour, New South Wales (33°51'S, 151°17'E), no other data.



Figure 1 *Acanthistius paxtoni* sp. nov., holotype, AM I.21555-001, 204 mm SL.

Diagnosis

This species is placed in the genus *Acanthistius* on the basis of the 13 dorsal fin spines and the large number of vertical scale rows above the lateral line (99 or more). Within *Acanthistius*, *A. paxtoni* is distinguished from other Australian members on the basis of its distinctive colour pattern of six poorly defined dark cross bars on the body and the numerous pale wavy lines on the head and body (brownish-orange in life), which may break up into spots. It is easily separated from *A. cinctus*, the only other species which possesses body cross bars, by the absence of wavy lines on the body of the latter species (see Hutchins 1981, Figure 1a). Also, the scales on the operculum and upper half of the preoperculum are

cycloid in *A. paxtoni* and ctenoid in *A. cinctus*. *A. paxtoni* differs from the Easter Island species, *A. fuscus*, in colour pattern (*A. fuscus* possesses no body bars or pale wavy lines), in its longer caudal peduncle (caudal peduncle depth 1.4-1.7 in its length, 1.0 for *A. fuscus*), as well as the condition of its opercular and preopercular scales (*A. fuscus* possesses ctenoid scales).

Description

Measurements of the holotype and paratype are presented in Table 1. The following counts and proportions of the paratype are in parentheses when differing from those of the holotype.

Dorsal rays XIII, 15; anal rays III, 8; pectoral rays 18 (19); lateral line pores to caudal base 51 (53); vertical scale rows from upper origin of gill opening to base of caudal fin 114 (111); scales in diagonal row from upper origin of gill opening to base of first dorsal spine 26 (28); scales in diagonal row from origin of first anal spine to lateral line 50 (57); gill rakers (including rudiments) on lower half of first gill arch 14 (16).

Greatest body depth 2.6, head length 2.3 (2.4), snout to origin of dorsal fin 2.6, lower lip to origin of anal fin 1.3, postorbital length of head 3.9 (4.0), length of spinous dorsal base 3.0, length of soft dorsal base 4.5 (4.6), all in

Table 1 Measurements in mm of the type specimens of *Acanthistius paxtoni*.

	Holotype AM I.21555-001	Paratype AM I.16997-001
Standard length	204	258
Head length	87	109
Snout length	22	27
Eye diameter	17	19
Interorbital width	11	14
Postorbital length of head	52	65
Greatest depth of body	78	98
Least depth of caudal peduncle	25	30
Length of caudal peduncle	35	50
Snout to origin of dorsal fin	78	100
Lower lip to origin of anal fin	155	199
Length of spinous dorsal base	69	87
Length of soft dorsal base	45	56
Length of pectoral fin	51	61
Length of pelvic fin	40	48
Length of longest dorsal spine	27	33
Length of longest dorsal ray	35	37
Length of longest anal spine	30	35
Length of longest anal ray	40	50
Length of caudal fin	45	52

standard length. Snout 4.0, eye 5.1 (5.7), least width of bony interorbital 7.9 (7.8), least depth of caudal peduncle 3.5 (3.6), length of caudal peduncle 2.5 (2.2), length of pectoral fin 1.7 (1.8), length of pelvic fin 2.2 (2.3), length of longest dorsal spine (fifth) 3.2 (3.3), length of longest dorsal ray (third) 2.5 (2.9), length of longest anal spine (second) 2.9 (3.1), length of longest anal ray (fourth) 2.2, length of caudal fin 1.9 (2.1), all in head length.

Interorbital space slightly convex; maxilla reaching level below posterior half of eye; opercle with three spines, middle spine much closer to lower than upper one; opercular flap pointed; preopercular margin rounded, upper limb coarsely serrate (lowermost serration somewhat larger than rest and directed downwards), three to four strong recurved spines on lower limb (both specimens have one bifid spine), increasing in size anteriorly; scales on body and dorsal surface of head mostly ctenoid, those on sides of head and ventral surface of body cycloid; predorsal scales extend to posterior nostrils; outer row of small conical acute teeth in both jaws, and an inner band of villiform teeth separated at the symphysis (some symphyseal teeth in upper jaw more cardiform); a V-shaped band of villiform teeth on vomer and a band of similar teeth on each palatine.

Colour of holotype in alcohol: ground colour greyish-brown with six poorly defined dark cross bars on body; numerous indistinct pale wavy lines on upper half of body, extending somewhat obliquely towards dorsal fin base; two indistinct broad dark bars radiate from posterior half of eye, upper reaching almost to uppermost opercular spine, lower to above angle of preoperculum (an extension of upper bar continues from front edge of eye to snout tip); spinous dorsal, pelvics and inner surface of pectorals dark brown, other fins greyish-brown; with the exception of the spinous dorsal, all fins are bordered distally by a narrow pale line. The colour of the paratype is similar to the holotype with the following exceptions: pale wavy lines on body more distinct and more numerous (about 10-11 on mid-body), those on upper two-thirds of body extending obliquely to dorsal fin base, those on lower third breaking up to spots; pale lines radiate irregularly from posterior half of eye; all fins dark brown.

Colour in life (based on a colour transparency of the freshly caught holotype, see Figure 1): head and body pale greyish-brown with many brownish-orange wavy lines, those on upper half of body extending obliquely to dorsal fin base and breaking into spots posteriorly, those on lower half also contracting to spots; lines on head radiate irregularly from posterior half of eye; body with six poorly defined dark cross bars, first from base of first dorsal spine to opercular flap, last across base of caudal fin; two indistinct broad dark bars radiate from posterior half of eye, upper one almost to uppermost opercular spine, lower to above angle of preoperculum; snout and dorsal surface of head dark brown with indications of brownish-orange spots; upper portion of maxillary groove with a dusky to brownish-orange streak; throat and breast pinkish-grey; all fins dusky, the dorsal and pectorals with irregular faint brownish-orange markings; with the exception of the spinous dorsal, all fins possess narrow pale distal borders.

Remarks

Acanthistius paxtoni is so far known only from two localities in New South Wales, Seal Rocks to the north of Newcastle, and Watsons Bay in Sydney Harbour. Its absence from intertidal rock pools, a habitat utilized by the juvenile stages of all other Australian *Acanthistius* species, suggests that this serranid is restricted to deeper reefs. Further collecting in this habitat will probably yield additional specimens from other areas along the New South Wales coastline.

Acanthistius cinctus, known from New South Wales, northern New Zealand, Lord Howe, Norfolk and the Kermadec Islands is closely related to *A. paxtoni*. Both are morphologically similar to *A. fuscus* from Easter Island, although the latter species lacks the body cross bars characteristic of the former two. Unfortunately the present shortage of specimens of both *A. paxtoni* and *A. fuscus* precludes any detailed analysis of this relationship.

This species is named after J.R. Paxton, Head of the Department of Ichthyology at the Australian Museum, Sydney, in honour of his contributions to Australian ichthyology.

Additional Material Examined

In addition to the material listed in Hutchins (1981), the following specimens were studied. *Acanthistius cinctus*: AM I.18497-012, 4 specimens, 92-218 mm SL, Emily Bay, Norfolk Island, 16 September 1975; AM I.10699, 320 mm SL, Lord Howe Island. *Acanthistius fuscus*: BMNH 1913.12.7.1, holotype, 180 mm SL, Easter Island, April 1911.

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